

**Notice of Allowability**

Application No.

10/807,000

Examiner

Thinh T. Nguyen

Applicant(s)

KIM ET AL.

Art Unit

2818

**-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address--**

All claims being allowable, PROSECUTION ON THE MERITS IS (OR REMAINS) CLOSED in this application. If not included herewith (or previously mailed), a Notice of Allowance (PTOL-85) or other appropriate communication will be mailed in due course. **THIS NOTICE OF ALLOWABILITY IS NOT A GRANT OF PATENT RIGHTS.** This application is subject to withdrawal from issue at the initiative of the Office or upon petition by the applicant. See 37 CFR 1.313 and MPEP 1308.

1. ☒ This communication is responsive to 10/3/2005.
2. ☒ The allowed claim(s) is/are 1-22 and 36-41.
3. ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some\* c) ☐ None of the:
- ☒ Certified copies of the priority documents have been received.
  - ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
  - ☐ Copies of the certified copies of the priority documents have been received in this national stage application from the International Bureau (PCT Rule 17.2(a)).


\* Certified copies not received: \_\_\_\_\_.

Applicant has THREE MONTHS FROM THE "MAILING DATE" of this communication to file a reply complying with the requirements noted below. Failure to timely comply will result in ABANDONMENT of this application.  
**THIS THREE-MONTH PERIOD IS NOT EXTENDABLE.**

4. ☐ A SUBSTITUTE OATH OR DECLARATION must be submitted. Note the attached EXAMINER'S AMENDMENT or NOTICE OF INFORMAL PATENT APPLICATION (PTO-152) which gives reason(s) why the oath or declaration is deficient.
5. ☐ CORRECTED DRAWINGS (as "replacement sheets") must be submitted.
- (a) ☐ including changes required by the Notice of Draftsperson's Patent Drawing Review (PTO-948) attached
- 1) ☐ hereto or 2) ☐ to Paper No./Mail Date \_\_\_\_\_.
- (b) ☐ including changes required by the attached Examiner's Amendment / Comment or in the Office action of Paper No./Mail Date \_\_\_\_\_.
- Identifying indicia such as the application number (see 37 CFR 1.84(c)) should be written on the drawings in the front (not the back) of each sheet. Replacement sheet(s) should be labeled as such in the header according to 37 CFR 1.121(d).
6. ☐ DEPOSIT OF and/or INFORMATION about the deposit of BIOLOGICAL MATERIAL must be submitted. Note the attached Examiner's comment regarding REQUIREMENT FOR THE DEPOSIT OF BIOLOGICAL MATERIAL.

**Attachment(s)**

- ☐ Notice of References Cited (PTO-892)
- ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- ☒ Information Disclosure Statements (PTO-1449 or PTO/SB/08), Paper No./Mail Date \_\_\_\_\_
- ☐ Examiner's Comment Regarding Requirement for Deposit of Biological Material
- ☐ Notice of Informal Patent Application (PTO-152)
- ☐ Interview Summary (PTO-413), Paper No./Mail Date \_\_\_\_\_
- ☒ Examiner's Amendment/Comment
- ☒ Examiner's Statement of Reasons for Allowance
- ☐ Other \_\_\_\_\_

  
Ngan Van Ngo  
Primary Examiner

## **DETAILED ACTION**

### **Examiner's Amendment.**

1. An examiner's amendment to the record appears below. Should the changes and/or additions be unacceptable to applicant, an amendment may be filed as provided by 37 CFR 1.312. To ensure consideration of such an amendment, it MUST be submitted no later than the payment of the issue fee.

Change the title to:

-- INTEGRATED CIRCUIT DEVICES WITH METAL-INSULATOR-METAL  
CAPACITORS --

**Reason for allowance**

2. Claims 1-22,36-41 are allowed. The following is an examiner's statement of reason for allowance:

**I/ Group I : Claims 1-12,36-37,40**

Claims 1-12,36-37,40 are allowed because None of the references of record teaches or suggests the claimed **INTEGRATED CIRCUIT DEVICES WITH METAL-INSULATOR-METAL CAPACITORS DEVICE** having the limitations:

-- " a dielectric layer on the substrate. a conductive contact plug extending through an opening in the dielectric layer to contact the substrate and including a widened pad portion extending onto the dielectric layer adjacent the opening; an ohmic pattern on the pad portion of the plug; a barrier pattern on the ohmic pattern; a concave first capacitor electrode disposed on the barrier pattern and defining a cavity opening away from the substrate, a capacitor dielectric layer conforming to a surface of the first capacitor electrode; and a second capacitor electrode disposed on the capacitor dielectric layer opposite the first capacitor electrode. "--

in claim 1.

**II/ Group II : Claims 13-22,38-39,41**

Claims 13-22,38-39,41 are allowed because None of the references of record teaches or suggests the claimed **INTEGRATED CIRCUIT DEVICES WITH METAL-INSULATOR-METAL CAPACITORS DEVICE** having the limitations:

“a dielectric layer on the substrate-, a conductive contact plug extending through an opening in the dielectric layer to contact the substrate and including a widened pad portion extending onto the dielectric layer adjacent the opening; stacked ohmic and barrier patterns disposed on the pad portion of the plug and having sidewalls substantially coplanar with a sidewall of the pad portion; a first capacitor electrode disposed on the barrier pattern; a capacitor dielectric layer on the first capacitor electrode; and a second capacitor electrode on the capacitor dielectric layer opposite the first capacitor electrode. “--

in claim 13.

Any comments considered necessary by applicant must be submitted no later than the payment of the issue fee and, to avoid processing delays, should preferably accompany the issue fee. Such submissions should be clearly labeled “Comments on Statement of Reasons for Allowance”.

### Conclusion

3. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Thinh T Nguyen whose telephone number is 571-272-1790. The examiner can normally be reached on Monday-Friday 9:00am-6:00pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, David Nelms can be reached at 571-272-1787. The fax phone numbers for the organization where this application or proceeding is assigned are (703) 872-9306 for regular communications and (703) 872-9319 for After Final communications.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval [ PAIR ] system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

Thinh T Nguyen



Art unit 2818



Ngan Van Ngo  
Primary Examiner